

Appl. No.: 10/582,103  
Amdt. dated January 13, 2009  
Reply to Office Action of December 4, 2008

Amendments to the Drawings

In response to the objection to the drawings, a replacement sheet 6/10 is enclosed herewith, on which the separate figures have been labeled as “FIG. 6A” and “FIG. 6B”.

Regarding FIG. 11, there is no FIG. 11 in this application, and hence the reference to FIG. 11 at page 5 of the specification has been deleted.

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#### REMARKS/ARGUMENTS

Claims 1-10 have been canceled without prejudice. Claims 11-20 have been added.

The Office Action objected to the drawings because they fail to show FIGS. 6A and 6B and FIG. 11. The above amendments to the drawings and specification overcome the objections.

The Office Action objected to the specification because it does not include headings, and because it uses "said" in various places. The above amendments to the specification overcome the objections.

Claims 1-10 were rejected under 35 U.S.C. 112, 1<sup>st</sup> paragraph, as failing to comply with the enablement requirement. Claims 2-10 were rejected under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, for various reasons enumerated in the Office Action. It is submitted that the cancellation of original Claims 1-10 and addition of new Claims 11-20 has overcome the rejections under Section 112.

Claims 1-4 and 10 were rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 342 889 A1 or U.S. Patent No. 4,973,223, both designated "Franklin". Claims 1-5 and 10 were rejected under 35 U.S.C. 102(b) as being anticipated by EP 1 260 675 A1 to Lutz. Claim 9 was rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication 2002/0078931 A1 to Hohkita et al.

Claims 6-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19835594A1 to Ganz in view of Franklin. Claims 6-8 were also rejected as being unpatentable over Ganz in view of Lutz.

#### Response to Rejections

It is submitted that the rejections in the Office Action are obviated by the cancellation of Claims 1-10 and the addition of new Claims 11-20. For the reasons given below, it is submitted that Claims 11-20 are patentable over the cited references.

Claim 11 is directed to a turbocharger having a variable nozzle device. The variable nozzle device includes a plurality of vanes mounted on the inboard wall of the annular nozzle and extending into the annular nozzle, the inboard wall and the vanes being fixed. The variable nozzle device also includes an axially movable, tube-shaped piston disposed within the turbine housing and having a piston end that forms the outboard wall of the annular nozzle such that the outboard wall is axially movable for varying an axial width of the annular nozzle. The piston end is stepped such that an annular first portion of the piston end extends axially farther toward the inboard wall than does a second portion of the piston end. The piston is axially movable in one direction into a fully closed position in which the first portion of the piston end passes along the radial outside or inside of the vanes and contacts the inboard wall so as to completely close the annular nozzle, and is axially movable in an opposite direction into partially open and fully open positions in which the first portion of the piston end is spaced from the inboard wall.

None of the cited references discloses or suggests the turbocharger of Claim 11. Franklin discloses a variable geometry turbine in which one wall of the turbine nozzle is formed by a movable wall member **4** having a tubular portion **16**. The movable wall member **4** carries a plurality of vanes **6** that are axially movable with respect to the tubular portion **16** and are biased by springs **21** into an extended position (FIG. 4) wherein the vanes **6** protrude through slots in the tubular portion **16** and extend beyond it. The wall member **4** can be moved into various positions including a fully open position in which the vanes **6** are spaced from the opposite fixed wall **5** of the nozzle (FIG. 4), a partially open position in which the vanes **6** just make contact with the fixed wall **5** (FIG. 3), and a fully closed position in which the tubular portion **16** contacts the fixed wall **5** (FIG. 2).

Franklin fails to disclose or suggest various aspects of Claim 11. In particular, Franklin fails to disclose a plurality of vanes mounted on a fixed inboard wall of the annular nozzle. Franklin fails to disclose a tubular piston having a stepped piston end wherein an annular first portion of the piston end extends farther toward the opposite inboard wall than does a second portion of the piston end, and wherein the piston is axially movable in one direction into a fully closed position in which the first portion of the piston end passes along the radial outside or

inside of the vanes and contacts the inboard wall so as to completely close the annular nozzle. Indeed, Franklin's tubular portion **16** is not stepped at all. Therefore, Claim 11 is not anticipated by Franklin, and is patentable over it.

Lutz also fails to disclose or suggest the turbocharger of Claim 11. Lutz describes a turbine variable nozzle having two sets of vanes **17** and **18**, wherein the vanes **18** are mounted on an axially movable vane ring **13**. The movable vanes **18** are interleaved with the fixed vanes **17**, and movement of the vane ring **13** varies the width of the nozzle as well as the amount of overlap between the two sets of vanes. Lutz's variable nozzle device does not include a piston whose end is stepped such that an annular first portion of the piston end extends farther toward the opposite inboard wall than does a second portion of the piston end. The vanes **18** do not form any annular first portion as required by Claim 11. Therefore, Claim 11 is not anticipated by Lutz, and is patentable over it.

The remaining cited references are no more pertinent to the patentability of Claim 11 than Franklin and Lutz. Accordingly, it is submitted that Claim 11 is patentable.

Independent Claim 18 is directed to a diesel engine boosting system, comprising the turbocharger in accordance with claim 11, and an electronic control device operable to close the variable nozzle device of the turbocharger to an optimum position for engine braking by causing a high back pressure upstream of the turbine of the turbocharger. Thus, since Claim 18 incorporates all of the limitations of Claim 11, it is patentable for at least the same reasons applicable to Claim 11.

Independent Claim 19 is directed to an engine boosting system for an internal combustion engine, comprising the turbocharger having the variable nozzle device in accordance with Claim 14, and a catalyst disposed downstream of the turbocharger, wherein the engine boosting system is operable to open the variable nozzle device at a start of the engine so as to cause exhaust gas to bypass the turbine wheel and heat up the catalyst. The limitations of Claim 14 (and thus of Claim 11) are incorporated into Claim 19, and thus the piston has the stepped configuration as noted above, and the turbine housing and the piston are configured such that the fully open

position of the piston allows some of the exhaust gas flowing through the annular nozzle to bypass the turbine wheel.

The cited references fail to disclose or suggest an engine boosting system according to Claim 19. In Franklin, the fully open position of the movable wall **4** does not allow any exhaust gas to bypass the turbine wheel **8** (FIG. 4). Likewise, in Lutz, no exhaust gas can bypass the turbine wheel, no matter what position the movable vane ring **13** is in. For at least these reasons, Claim 19 (as well as Claim 14) is not disclosed or suggested by the cited references, and therefore is patentable.

Additionally, the cited references fail to disclose or suggest fully opening a variable nozzle device to allow exhaust gas to bypass the turbine wheel so as to heat up a catalyst disposed downstream of the turbocharger. Accordingly, Claim 19 is patentable over the references.

Independent Claim 20 is directed to a method for operating an internal combustion engine, comprising the steps of (1) providing a first turbocharger and a second turbocharger arranged in parallel with respect to the engine, wherein the second turbocharger comprises the turbocharger having the variable nozzle device in accordance with claim 11, (2) completely closing the variable nozzle device of the second turbocharger when the engine is operating below a certain rotational speed, such that only the first turbocharger works to supercharge the engine, and (3) opening the variable nozzle device of the second turbocharger when the engine is operating above said certain rotational speed.

Ganz has been cited against original Claim 6 of similar scope. However, Ganz fails to disclose or suggest the step of providing a first turbocharger and a second turbocharger arranged in parallel with respect to the engine, wherein the second turbocharger comprises the turbocharger having the variable nozzle device in accordance with claim 11. For at least this reason, Claim 20 is not disclosed or suggested by Ganz or the other cited references.

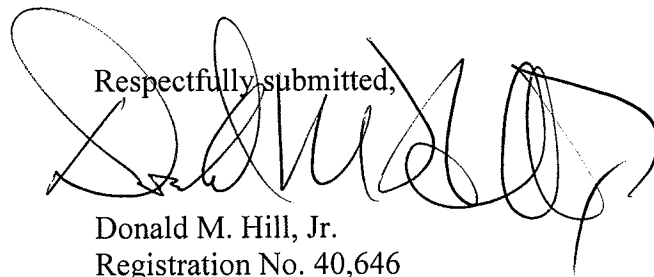
Appl. No.: 10/582,103  
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Based on the above amendments and remarks, it is submitted that Claims 11-20 are patentable over the cited references.

### Conclusion

Accordingly, it is submitted that the application is in condition for allowance.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

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**ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT & TRADEMARK OFFICE ON January 13, 2009.**